It is further proposed that the protocols which are processed within a protocol stack assigned to the interface to a terminal and which belong to a transport layer, a layer 1 or a layer 2 are allocated to at least one processor module according to the required channel capacity or channel width.

Finally it is proposed that the protocols which are processed within a protocol stack assigned to the interface to a base station and which belong to a transport layer, a layer 1 or a layer 2 are allocated to at least one processor module according to the required number of nodes B and the required overall bandwidth to the nodes B.

It is conceivable for the protocols which belong to a layer 3 and are assigned to the interfaces to be allocated to at least one further processor module comprising a plurality of individual processors according to the required channel capacity and channel bandwidth, the required number of nodes B and the required overall bandwidth to the nodes B.

Another realisation of the object of the present invention is based on a universal device (processor board) for implementing a transport layer, a layer 1 and a layer 2 for a telecommunications interface of a device (RNC) for controlling a radio cell cluster consisting of a plurality of radio cells of a radio network, where the precise function of the universal device can be implemented by a loadable computer program. The computer program can be loaded into memory elements of the processor boards of the RNC for example during the initialisation phase of the RNC.

As another realisation of the object of the present invention, on the basis of the device (RNC) for controlling a radio cell cluster of the type referred to in the introduction it is proposed that for the implementation of a transport layer, a layer

1 and a layer 2 for a telecommunications interface of the RNC, the RNC comprises a plurality of universal devices according to Claim 7.

The advantages of the method according to the invention and of the device (RNC) according to the invention come to bear in particular in a UMTS terrestrial radio access (UTRA) network.

In the device according to the invention, sufficient redundancy can be achieved without a large hardware outlay as the XPU/xx processor modules and the high level (HL) processor modules of the RNC are of identical design. Additionally, the device according to the invention can be scaled particularly well as in order to increase the channel capacity or number of nodes B it is simply necessary to provide additional processor modules and to assign specific protocol stacks thereto.

Description:

Further features, possible applications and advantages of the invention will be described in the following description of exemplary embodiments of the invention which are illustrated in the drawing. Here all the described or represented features constitute the subject of the invention, independently or in any combination and irrespective of their summarization in the claims or their dependencies and irrespective of their wording in the description and representation in the drawing. In the drawing:

Figure 1 illustrates a schematic construction of a device (RNC) according to the invention for controlling a radio cell cluster of a radio network and

Figure 2 is another schematic diagram of the device according to the invention shown in Figure 1.

A device according to the invention illustrated in Figure 1 and Figure 2 is also referred to as radio network controller (RNC). The RNC controls a radio cell cluster consisting of a plurality of radio cells of a UMTS terrestrial radio access (UTRA) radio network.

The RNC is divided into a plurality of hierarchy levels. The uppermost level is referred to as control platform and comprises an OAM server and a telecom server (see Figure 2). The control platform is directly connected to an underlying level via an Ethernet connection. The underlying level is referred to as Aux subsystem and comprises a plurality of processor modules XPU/xx. In each instance four individual processors are combined to form a processor module XPU/-Iu, XPU/-Iur, XPU/-UE and XPU/-NB. The underlying level is referred to as transport subsystem and comprises a switch element designated as switch. The switch has the form of an internet protocol (IP) rooter or an ATM cross connect.

From the switch, a plurality of interfaces Iu, Iur, Iub-UE, Iub-NB branch off to different network components of the radio network. The components of the radio network comprise a plurality of terminals, so-called user equipment (UEs), at least one base station, so-called nodes B (NBs) and at least one further device, so-called radio network controller (RNC) for controlling the radio cell cluster. The radio network is connected to a switching device, so-called core network (CN). Via the switch element the interfaces Iu, Iur, Iub-UE and Iub-NB are connected to the processor groups XPU/-Iu, XPU/-Iur, XPU/-UE and XPU/-NB.

The processors XPU/xx in the RNC serve to process messages which, via the interfaces Iu, Iur, Iub-UE and Iub-NB, are received from the other components of the radio network and are sent to these components from the RNC.